

**B.TECH. SEM -VII INFO. TECH. 2014 COURSE (CBCS) : WINTER -
2017**

SUBJECT: ELECTIVE – III 4) NEURAL NETWORK

Day: **Friday**
Date: **19/01/2018**

Time: **02.30 PM TO 05.30 PM**
Max. Marks: **60**

W-2017-2308

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Assume suitable data, if necessary.
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Q.1 Enlist and explain various models of artificial neural networks with their corresponding advantages and disadvantages. **(10)**

OR

Using the Hebb rule, find the weight required to perform classifications: vector **(10)**
(1111) and (-1 1-1-1) are members of class (with target values 1):
Vectors (111-1) and (1-1-1 1) are not members of class (with target value -1).

Q.2 State and explain concept of local Minima in detail. **(10)**

OR

Explain the limitations of Back propagation learning. Also explain the scope to overcome these limitations. **(10)**

Q.3 What is associate memory? Explain its various types in detail with suitable examples. **(10)**

OR

Design a Hopfield network for 4-bit bipolar patterns. The training patterns are **(10)**
 $S_1 = [1, -1, -1, -1]$
 $S_2 = [-1, 1, 1, -1]$
 $S_3 = [-1, -1, -1, 1]$
Find the weight matrix and energies for the three input samples. Determine the pattern to which the sample $S = [-1, 1, -1, -1]$ associates.

Q.4 Distinguish between the Feedforward and Feedbackward neural networks. Compare their input - output mapping. **(10)**

OR

Define simulated annealing? Explain in detail the method used in simulated annealing. **(10)**

Q.5 State and explain in detail unsupervised learning used in clusters. **(10)**

OR

Elaborate concepts behind Adaptive Resonance Theory (ART)? Explain basic architecture and operation of ART network. **(10)**

Q.6 Describe how a neural network may be trained for a pattern reorganization task. Illustrate with an example. **(10)**

OR

Write a note on following with suitable diagram. **(10)**
a) Texture classification.
b) Recognition of consonant vowel (CV) segments.

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